Staffordshire County Council Surface Water Drainage Statement Proforma

In order to provide the level of surface water drainage detail required for planning applications where a Flood Risk Assessment (FRA) is not required[1], then the Applicant, or those working on their behalf, must complete the following proforma to be submitted in support of an application. We will use these details in our 'statutory consultee' role on SuDs for all applications less than 1 hectare, where a FRA is not required. The proforma should be considered alongside other supporting SuDS Guidance, but focuses on ensuring flood risk is not made worse elsewhere. The SuDs solution must operate effectively for the lifetime of the development, taking into account climate change. This proforma is not exhaustive, so feel free to provide any additional supporting information. This submission will be used as a basis for our response to a consultation from the Local Planning Authority.

1. Site Details

Site Name and LPA reference	
Address & post code	
Grid reference	
Is the existing site developed or Greenfield?	
Total Site Area served by drainage system (excluding open space) (Ha)*	
Topographical survey plan showing existing site layout, site levels and drainage system	

* The Greenfield runoff off rate from the development which is to be used for assessing the requirements for limiting discharge flow rates and attenuation storage from a site should be calculated for the area that forms the drainage network for the site whatever size of site and type of drainage technique. Greenfield rates are usually considered to 4 – 7 litres a second per hectare, depending upon ground conditions. For guidance upon ascertaining greenfield rates, please refer to the UK SuDS website www.UKsuds.com, Rainfall Runoff Management guidance, the CIRIA manuals C697 and C753 or speak to us directly for further details.

[1] In accordance with the NPPF and PPG, a FRA is not required for a development / re-development of less than 1 hectare in Flood Zone 1, as shown on the Environment Agency Flood Map, unless affected by a pluvial flow route as shown on the Updated Map for Surface Water Flooding or other pluvial sources of flooding .i.e. An area recorded as a flooding hotspot or close to a surface water flow route.

For all proposals less than 1 hectare within Flood zone 1, this proforma should be completed.
For all proposals within Flood Zones 2 and 3, a FRA should be submitted in support of the application.

2. Impermeable Area

	Existing	Proposed	Difference (Proposed - Existing)	Notes for developers & Local Authorities
Impermeable area (ha) Areas to be shown on a plan				If the proposed amount of impermeable surface is greater, then runoff rates and volumes will increase. Section 6 must be filled in. If the proposed impermeable area is equal or less than existing, then section 6 can be skipped & section 7 filled in.
Drainage Method (infiltration/watercourse/sewer)			N/A	If different from the existing, please fill in section 3. If existing drainage is by infiltration and the proposed is not, discharge volumes may increase. Please fill in section 6.

3. Surface Water Discharge

	Yes	No	Evidence that this is possible	Notes for developers & Local Authorities
Infiltration				e.g. soakage tests. Section 6 (infiltration) must be filled in if infiltration is proposed.
To watercourse				e.g. Is there a watercourse nearby? Please provide details of any watercourse to which the site drains including cross-sections of any adjacent water courses for appropriate distance upstream and downstream of the discharge point (as agreed with the LLFA)
To surface water sewer				Confirmation from sewer provider that sufficient capacity exists for this connection.
Combination of above				e.g. Part infiltration / part discharge to watercourse / sewer. Please provide evidence.
To Combined Sewer / Foul				Evidence must be provided to demonstrate that this is the only feasible and viable option in accordance with the SUDs hierarchy.
Has the drainage proposal given regard to the SuDs hierarchy?				Evidence must be provided to demonstrate that the proposed Sustainable Drainage proposal has had regard to the SUDs hierarchy.
Layout plan showing where the sustainable drainage infrastructure will be located on site.				Please provide plan reference numbers showing the details of the site layout showing where the sustainable drainage infrastructure will be located on the site. If the development is to be constructed in phases this should be shown on a separate plan and confirmation should be provided that the sustainable drainage proposal for each phase can be constructed and can operate independently and is not reliant on any later phase of development.
Existing and proposed sewer calculations				Please provide calculations of existing and proposed run-off rates and volumes in accordance with a recognised methodology or the results of infiltration tests in accordance with BRE365. For guidance and assistance, please refer to IoH124, ADAS345, FEH software or the UK SuDS website http://www.uksuds.com/greenfieldrunoff_js.htm

4. Peak Discharge Rates – This is the maximum flow rate at which storm water runoff leaves the site during a particular storm event.

	Existing Rates (l/s)	Proposed Rates (l/s)	Difference (l/s) (Proposed-Existing)	Notes for developers & Local Authorities
Greenfield QBAR (mean annual flood flow rate in a river)		N/A	N/A	QBAR is approx. 1 in 2 storm event. Provide this if Section 6 (QBAR) is proposed.
1 in 1 year				Proposed discharge rates (with mitigation) should be no greater than existing rates for all corresponding storm events. e.g. discharging all flow from site at the existing 1 in 100 event increases flood risk during smaller events. If a brownfield site, 20% betterment on discharge should be considered.
1 in 30 year				
1in 100 year				
1 in 100 plus climate change **(1 in 100 &CC)**				To mitigate for climate change the proposed 1 in 100yr&CC must be no greater than the existing 1 in 100 runoff rate. If not, flood risk increases with climate change. An appropriate climate change allowance should be added to the peak rainfall intensity depending upon the lifetime of the development – usually 20% for commercial or industrial and 30% for residential.

5. Calculate additional volumes for storage –The total volume of water leaving the development site. New hard surfaces potentially restrict the amount of stormwater that can go to the ground, so this needs to be controlled to prevent exacerbating flood risk downstream of the site and elsewhere.

	Existing Volume (m^3)	Proposed Volume (m^3)	Difference (m^3) (Proposed-Existing)	Notes for developers & Local Authorities
1 in 1 year				Proposed discharge volumes (without mitigation) should be no greater than existing volumes for all corresponding storm events. Any increase in volume increases flood risk elsewhere. Where volumes are increased section 6 must be filled in.
1 in 30 year				
1in 100 year				
1 in 100 year plus climate change				To mitigate for climate change the volume discharge from site must be no greater than the existing 1 in 100 storm event. If not, flood risk increases under climate change. A realistic range of durations should be trialled to ascertain the design storm to find the critical duration at the proposal site. The critical duration is the one that gives the greatest flow, or the greatest storage volume at the proposal site. www.UKSuDS.com provides a free storage evaluation tool which can provide estimates for flows and volumes.

6. How Surface Water is stored on-site - Storage is required for the additional volume from site but also for holding back water to slow down the rate from the site. This is known as attenuation storage and long term storage. The concept is that the additional volume does not get into watercourses or receiving body, or if it does, it is at an exceptionally low rate. You can either infiltrate the stored water back to ground, or if this isn't possible hold it back with on-site storage. Firstly, is infiltration feasible on site?

State the Site's Geology / drift material overlaying: ……
(Avoid infiltrating in made ground)

		Yes	No	Notes for developers & Local Authorities
Infiltration	**Does the site have a high ground water table? Yes/No?**			If yes, please provide details of the site's hydrology.
	Is the site within a known Source Protection Zones (SPZ)? Yes/No?			Infiltration rates are highly variable and refer to Environment Agency website to identify and source protection zones (SPZ)
	Are infiltration rates suitable?			Infiltration rates should be no lower than $1x10^{-6}$ m/s.
	Is the site contaminated? If yes, consider advice from others on whether infiltration can happen.			Water should not be infiltrated through land that is contaminated. The Environment Agency may provide bespoke advice in planning consultations for contaminated sites that should be considered.
	State the distance between a proposed infiltration device base and the groundwater (GW) level			1 metre as a minimum should be provided between the soakaway base and the highest water table level to ensure groundwater doesn't enter the device and to protect groundwater quality. Avoid infiltration where this isn't possible.
	Were infiltration rates obtained by desk study or infiltration test?			Infiltration rates can be estimated from desk studies at most stages of the planning system if a back-up attenuation scheme is provided.
In light of the above, is infiltration feasible?	**Yes/No? If the answer is No, please identify how the storm water will be stored prior to release.**			If infiltration is not feasible how will the additional volume be stored? The applicant should then consider the following options in the next section. Soakaways should be sized to accommodate the 1:100yr storm where possible.

7. Calculate attenuation storage – Attenuation storage is provided to enable the rate of runoff from the site into the receiving watercourse to be limited to an acceptable rate to protect flooding downstream. The attenuation storage volume is a function of the degree of development relative to the greenfield discharge rate.

		Notes for developers & Local Authorities
Storage attenuation volume in m^3 required to retain rates as existing via flow control		Volume of water to attenuate on site if discharging at existing rates. Cannot be used where discharge volumes are increasing

7a. Storage requirements - The developer must confirm that either of the two methods for dealing with the amount of water that needs to be stored on site.
Option 1 Simple – Store both the additional volume and attenuation volume in order to make a final discharge from site at **QBAR** (Mean annual flow rate). This is preferred if no infiltration can be made on site. This very simply satisfies the runoff rates and volume criteria.
Option 2 Complex – If some of the additional volume of water can be infiltrated back into the ground, the remainder can be discharged at a very low rate of 2 l/sec/hectare. A combined storage calculation using the partial permissible rate of 2 l/sec/hectare and the attenuation rate used to slow the runoff from site.

		Notes for developers & Local Authorities
Please confirm what option has been chosen and how much storage is required on site.		The developer at this stage should understand the site characteristics and be able to explain what the storage requirements are on site and how it will be achieved.

8. Additional Information

		Notes for developers & Local Authorities
Which Drainage Systems measures have been used? **i.e. *Ponds* / *swales* / *permeable paving* / *rain gardens***		SUDS can be adapted for most situations even where infiltration isn't feasible e.g. impermeable liners beneath some SUDS devices allows treatment but not infiltration. See CIRIA SUDS Manual C697 and C753.
Drainage system able to contain water in a 1 in 30 storm event without flooding		A requirement for sewers for adoption and good practice even where drainage system is not adopted.
Any flooding between the 1 in 30 & 1 in 100 plus climate change storm events will be safely contained on site.		**Safely:** not causing property flooding or posing a hazard to site users i.e. no deeper than 300mm on roads/footpaths. Flood waters must drain away at section 6 rates. Existing rates can be used where runoff volumes are not increased.
How are rates being restricted (flow control)		Flow control devices can be used where rates are between 2l/s to 5l/s. Orifices should not be used below 5l/s as the pipes may block. Pipes with flows < 2l/s are prone to blockage.
Drainage during construction period		Provide details of how drainage will be managed during the construction period including any necessary connections, impacts, diversions and erosion control.

9. Management and Maintenance of SuDs - Details are required to be provided of the management and maintenance plan for the SUD, including for the individual plots in perpetuity. If open water is involved, a health and safety plan will also be required.

How is the entire drainage system to be maintained in perpetuity?		Clear details of the maintenance proposals of all elements of the proposed drainage system must be provided to show that all parts of SuDs are effective and robust. Provide a management plan to describe the SUDS scheme and set out the management objectives for the site. It should consider how the SuDs will perform and develop over time anticipating any additional maintenance tasks to ensure the system continues to perform as designed. — Specification notes that describe how work is to be undertaken and the materials to be used. — A maintenance schedule describes what work is to be done and when it is to be done using frequency and performance requirements as appropriate. — A site plan showing maintenance areas, control points and outfalls. Responsibility for the management and maintenance of each element of the SUDS scheme will also need to be detailed within the Management Plan. Where open water is involved please provide a health and safety plan within the management plan.
Please confirm the owners/adopters of the entire drainage systems throughout the development. Please list all the owners.		If these are multiple owners then a drawing illustrating exactly what features will be within each owner's remit must be submitted with this Proforma. Please give details of each feature and how it will be managed in accordance with the details in the management plan.
Please provide details demonstrating that any third party agreements required using land outside the application site have been secured.		i.e. Legal agreements, s106, Environment Agency Flood Defence Consent / Lead Local Flood Authority s.23 Land Drainage Act Consent

The above form should be completed using evidence from information which should be appended to this form (including from the Flood Risk Assessment and site plans). It should serve as a summary of the drainage proposals and should clearly show that the proposed rate and volume as a result of development will not be increasing. If there is an increase in rate or volume, the rate or volume section should be completed to set out how the additional rate/volume is being dealt with.

This form is completed using factual information and can be used as a summary of the surface water drainage strategy on this site.

Form Completed By…….....

Qualification of person responsible for signing off this pro-forma .....

Company…….,.....

On behalf of (Client's details) .....
Date:…….....